



Revised Sheet # 1 of 19

Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049

Brief description of the invention several views of the drawing

Drive axle unit part # 856 passenger side / part # 857 driver side

There are two units one for each side of the truck they are made using 1 / 2" x 2" 6061 aluminum bar and welded, together, the alignment pins made from 75 ST aluminum round bar. Machined one end to 3 / 4" with 3/8" radius and 1/8" shoulder that rest in the wheel radius to locate unit. The other end milled off flat and the two fixed pins have steel insert part # 651-04 threaded in the center and the other four pins have the steel insert located 3/16" off center so it is adjustable, they are attached with 1 / 4" allen bolts. There is a chain that keeps them, from getting lost or damage. There are two sets of holes for the pins one is for 22.5" size marked B on drawing, inner circle 11 1/16" radius, the other for the 24.5" size marked A on drawing, outer circle 12 1/16" radius All dimension taken from location D at center of unit. For more information see material list below and the drawing next sheet.

C - on drawing 2 places 5 1/2" apart # 21 hole use a 10-32 tap and install 1" socket set screws part # 101287 w/locknut. Adjust and tighten to secure level.

D - on drawing 1/4" hole using 1/4"-20 x 2" socket set screws into center hole in level using nylon locknut.

E - on drawing 1" hole 6" from top and bottom on center upright, 3/8" threaded rod to hole unit onto wheel.

Material list for one side, it requires two units one opposite.

# 1	1 pc.	center upright 1 / 2" x 2" x 27 " 6061 aluminum bar stock	
# 2	1 pc.	top cross member 1 / 2" x 2" x 34" 6061 aluminum stock	Revised
#3	1 pc.	bottom cross member 1 / 2" x 2" x 27" 6061 aluminum stock	Revised
#4	2pc.	top and bottom locator pins 1" x 3 1/2" 75 ST aluminum stock Figure 7 - 7	Revised
#5	4pc.	locator pins 1" x 4" 75 ST aluminum round stock Figure 6 - 6	Revised
#6	1 pc.	laser level part # 46735 Figure 8 - 8	Revised
#7	2pc.	3/8" threaded rod 19" long with 1 3/4" bend at 60 degree with 2 fender washers	
		springs & wing nut view # 7	Revised

Added Sheet # 1-A of 19

Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049

8 2 pc. 3/8" ID. x 3" springs view # 7

#9 7pc. 1/4" x 1 1/4" allen bolt

10 6 pc. 1/4" x 6" chain w/drive pins # 6 x 1/2"

Revised

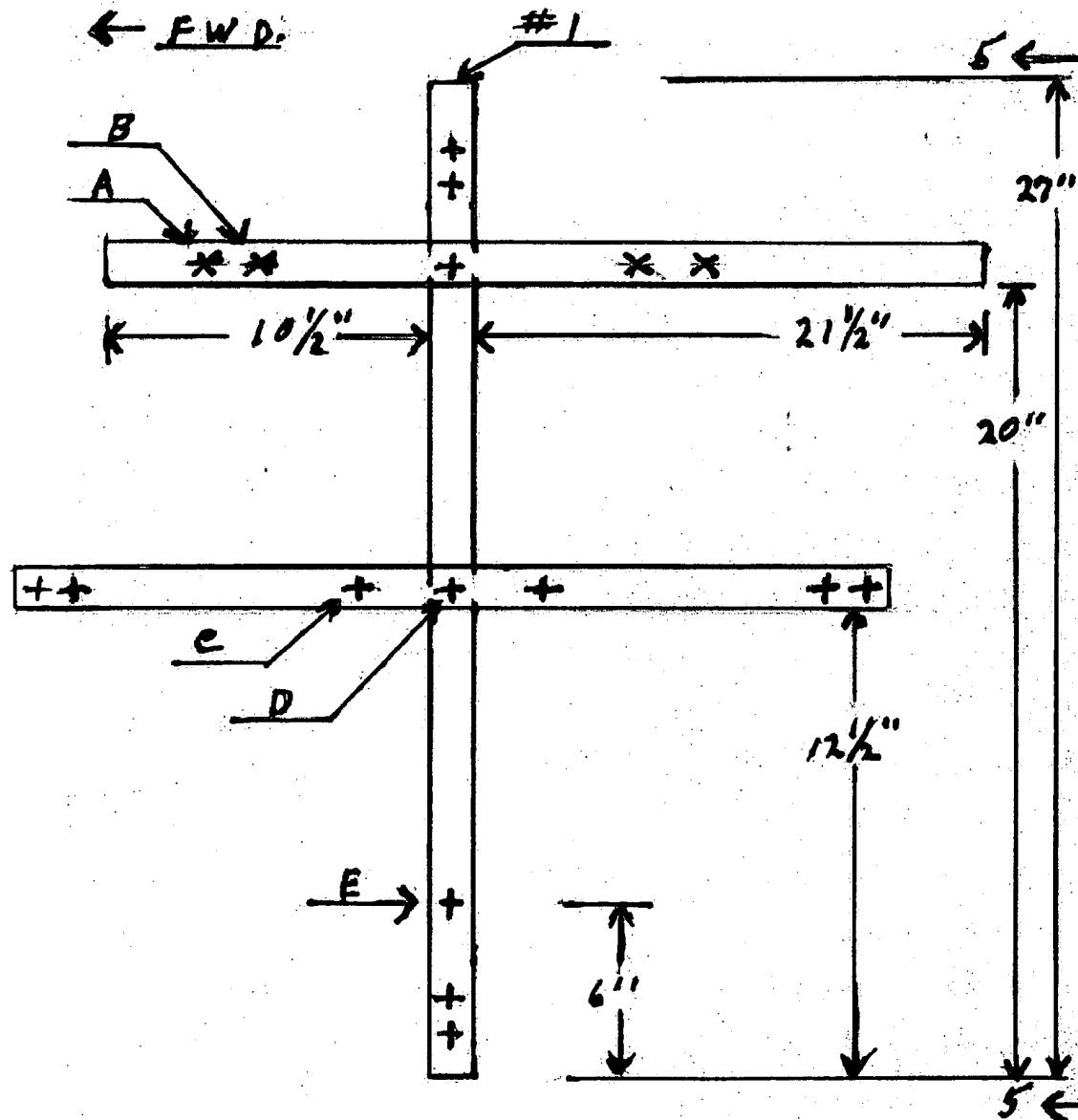
11 2 pc. 3/8" ID. rubber hose 1/2" long and cover with plasti-dip red view # 7

Added



Added Sheet # 2 of 19

Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049



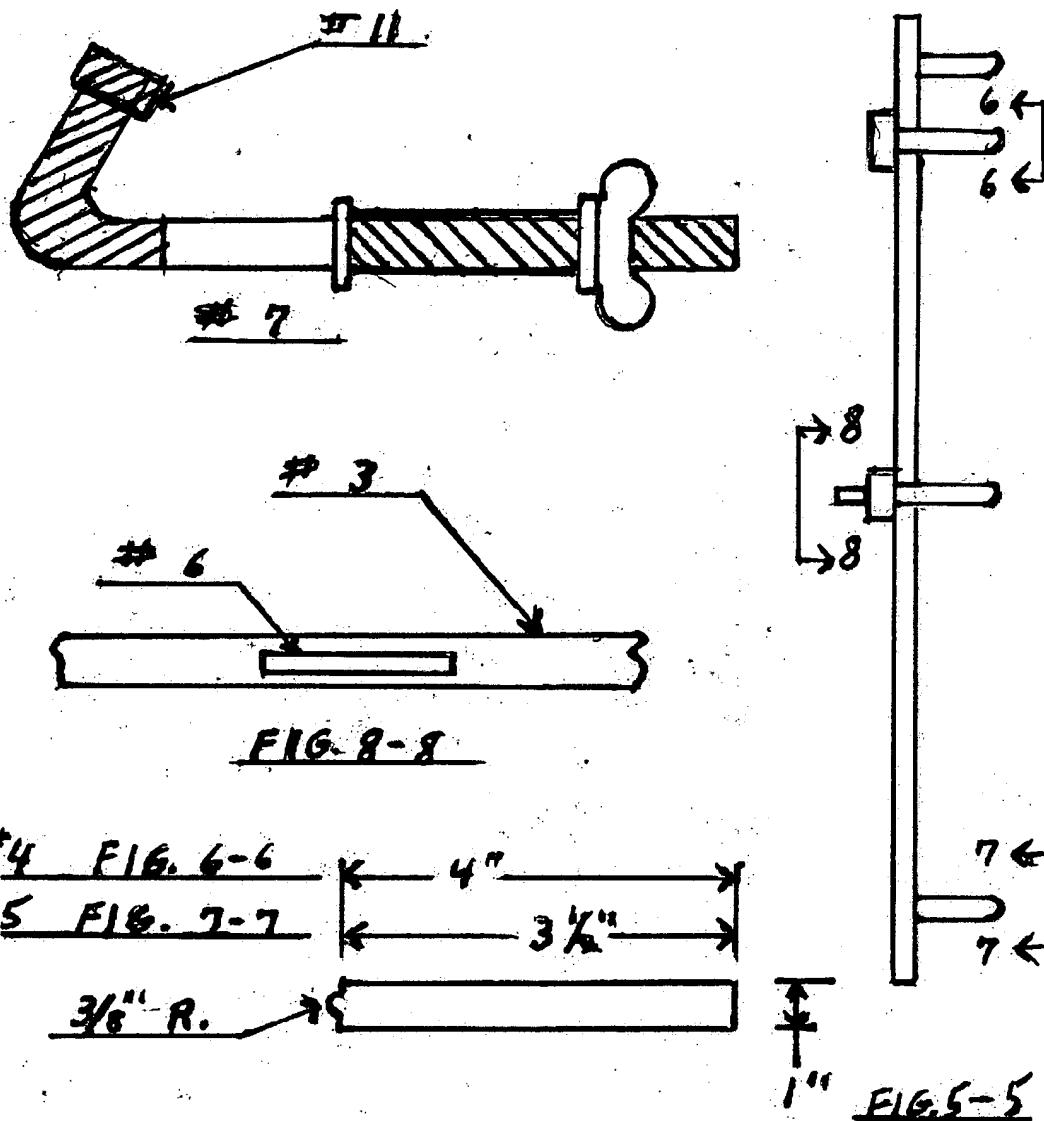
Part # 857 Driver Side Shown

Part # 856 Passenger Side Opposite



Added Sheet # 2-A of 19

Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049



View 5-5 Rotated 90 Degrees

Henry Rohrig Truck Alignment System Steering unit part # 858 passenger side # 859 drivers side.

There are two units one for each side of the truck they are made using 1/2" x 2" 6061 aluminum bar stock and welded together, the alignment pins made from 75 ST aluminum 1"round bar stock. Machined one end to 3/4" with 3 / 8" radius and 1/8" shoulder that rest in the wheel radius to locate unit. The other end milled off flat and the two fixed pins has steel insert part # 651 - 04 threaded in the center for bottom and lower front pin to locate unit, the other four pins has the steel insert located 3 / 16" off center so it is adjustable, all the pins are attached with 1 / 4" allen bolts. There is a chain that keeps them from getting lost or damage. There are two sets of holes for the pins, one is for 22 . 5" size wheel "B" on drawing inter circle 11 1/16" radius marked red index on tooling, the other 24 . 5" size wheel "A" on the drawing outer circle 12 1/16" radius marked black index on tooling.

"C" on drawing depict a 1" hole 6" from top and bottom of the upright, for the 3/8" threaded rods to hold unit onto wheel.

FIGURE # D - D The plate material 1/4" x 1 1/2 x 7 1/4 6061 aluminum bar stock, figure depicts steering axle driver side, other side opposite. Plate to hold scale, drill # 36 holes & tap with 6-32. Next weld them on with the end even with the inside of center upright. Install using 6-32 x 3/4 socket head cap screw part # 011061 with flat washers & nylon locknuts. This is for the adjustment on the alignment units when in the jigs. The 1/8" wide x 3/8" long grove line up with the screws and the 1" mark begin there and the nos. go out to 7". Scale on the other side is opposite. For more information see material list next and the drawing next page.

Material list for one side, it requires two units one opposite.

# 1	1 pc.	center upright 1/2" x 2" x 27"	6061 aluminum bar stock	
# 2	1 pc.	top cross member 1/2" x 2" x 22"	6061 aluminum bar stock	revised
# 3	1 pc.	bottom cross member 1/2" x 2" x 46"	6061 aluminum bar stock	revised
# 4	2 pc.	top and bottom locate pins 1" x 4" figure 4-4	75 ST round stock	revised
# 5	4 pc.	locate pins 1"x 3 1/2" figure 3-3	75 ST round stock	revised
# 6	1 pc.	scale support 1/4" x 1 1/2" x 7 1/4"	6061 aluminum bar stock	revised

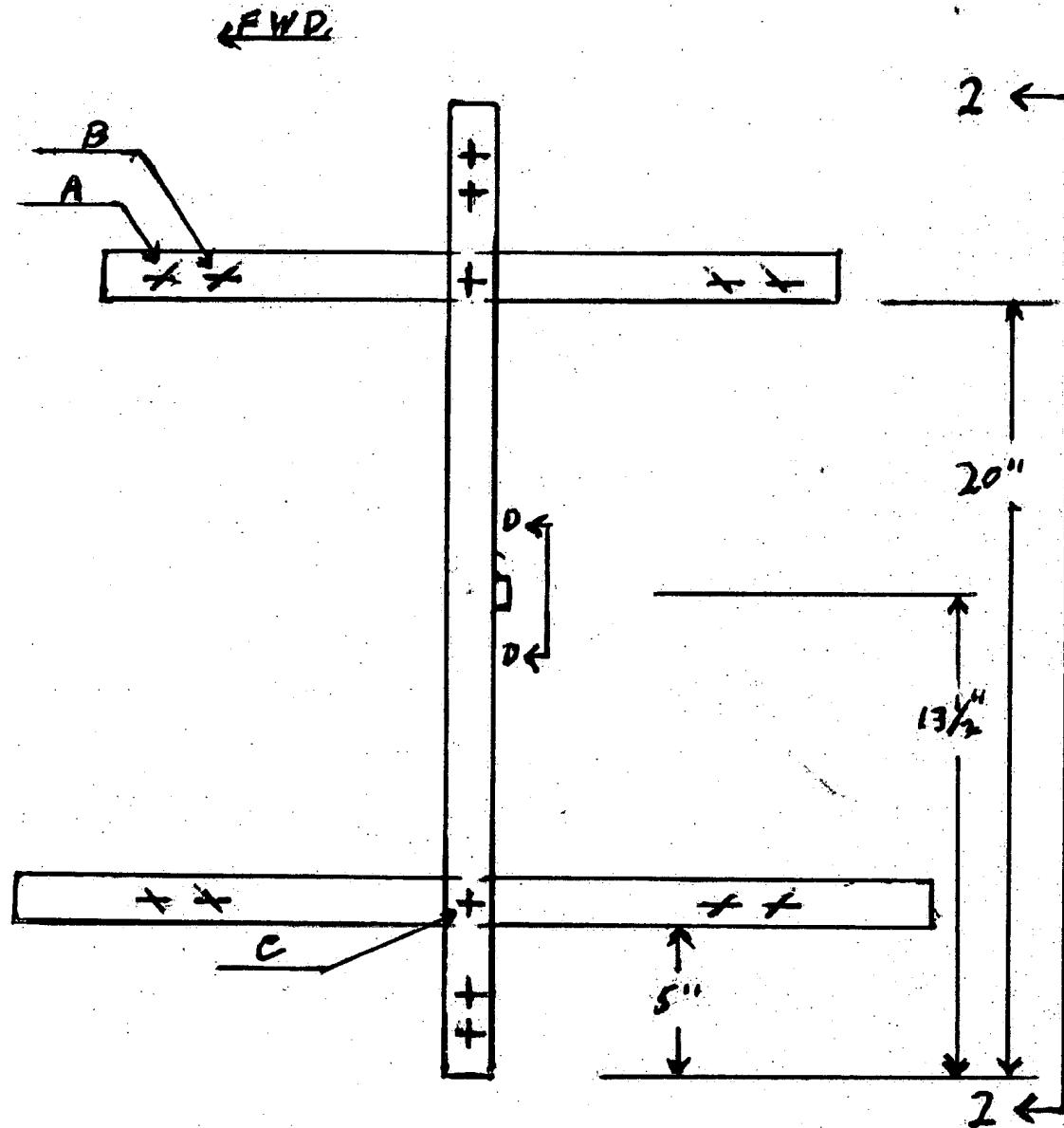
Added Sheet # 3-A of 19

Henry Rohrig Truck Alignment System Steering unit part # 858 passenger side # 859 drivers side.

# 7	1 pc.	7"scale figure D - D # 7	revised
#8	2pc.	3/8" threaded rod 11 1/2" long with 1 1/2" bend 60° with 2 fender washers- spring and wing-nut 3/8 rubber hose and covered with plasti-dip red view #8	revised
#9	2pc.	3/8" ID. x 3" springs *	
#10	6pc.	1/4" x 6"chain with drive pins #6 x 1/2"	revised
#11	6pc.	1/4" x 1 1/4" allen bolts	

Henry Rohrig **Truck Alignment System** **818-761-3628** **818-489-2049** **Part # 858 / Part # 859**

Steering Unit for 22.5" / 24.5" wheel size also used on Busses



Part # 859 Driver side shown

Part # 858 Passenger side opposite

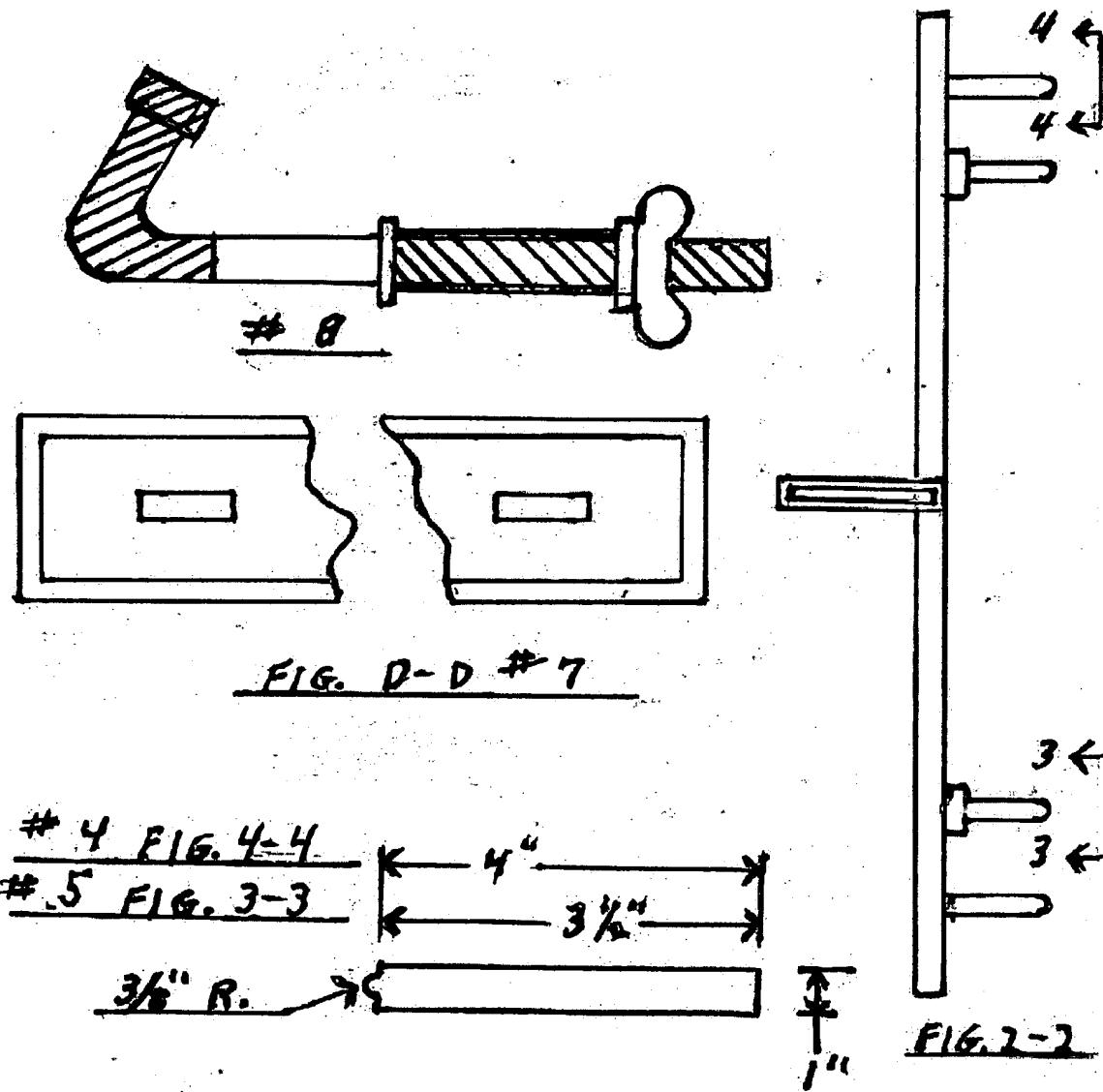


Figure 2-2 Rotated 90 degrees

Henry Rohrig Truck Alignment System - Trailer Unit part # 860

This unit made with 1/16" x 1 1/2" x 1 1/2" 4130 steel tubing and 1/8" steel plate see material list next page.

The bottom section supporting a 7" scale with 1/16" graduation used for the alignment. These two scales have an index point at the 3" mark that is used to calibrate the unit. To calibrate use the trammel point and bar, put one end on the 3" mark the other on the index point at the red dot, top center of unit, then swing to other side and set on scale 3" mark and adjust scale if required. This is calibrated with the king pin, it has two telescope legs that swing to the rear and touch the ground. This holds the unit in place with the kingpin, this plate is # 6 on the drawing sheet # 6, also as depicted on drawing view I - I figure 1, figure #2 and view II-II are the hinge for the top of the telescope leg on each side. Item "B" figure #2 depict a 10-32 x 3/4" screw and 1/8" rubber washer w/locknut. Item "A" view II-II depict part #7, a "U" channel 3/4" x 5/8" x 3/4" 1" long 75 ST aluminum as part of the hinge with 6-32 x 1" screw and 1/8" rubber washer w/locknut. In both places the rubber washer works to stabilize hinge movement.

Some shops use the outside of trailer which can be incorrect if it is damage. The only true part is the kingpin.

To align the trailer you would use the Drive Axle Alignment tooling part # 856 - 857 see sheet # 2. Jack the rear axle rotating the wheel and checking bearing for condition and tightness. You will also check the brake drums making sure they are not rubbing or the brakes are not out of adjustment. Now check if there is wheel movement - top- to bottom or side to side, if so you must replace the bearings or recalibrate then. When everything checks out you lower the wheels onto the roller plates. Next you install the same tooling used for the drive axle alignment part # 856 - #857 attach them to both wheels, the bottom and lower front pins are fixed to locate unit, use the two threaded rods to hold the units to the wheels, then rotate the other four pins to rest in wheel radius and tighten allen bolts in both units. Next turn laser light on both sides and light will be projected on the scales located on the king pin tooling. If it is not the same number on both sides the axle will have to be adjusted to align up correctly.

After this rejacking and remove roller plates. If you have two axles then proceed to forward axle and repeat the same method again.

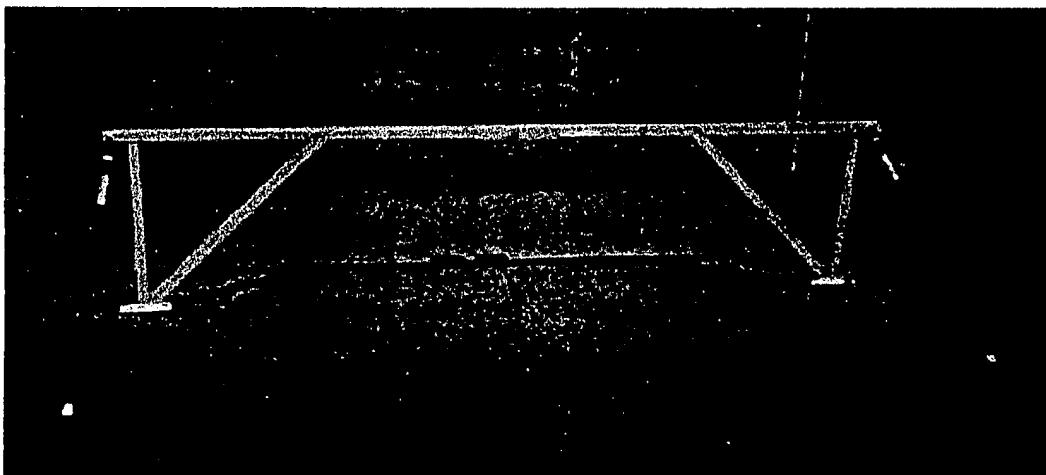
Material list;

#1 1 pc. top frame 1 1/2 " x 1 1/2" x 108 " 4130 steel

Added Sheet # 5-A of 19

Henry Rohrig Truck Alignment System - Trailer Unit part # 860

- #2 2 pc. angle brace 1 1/2 " x 1 1/2 " x 33 7/8 " cut on 45 degree angle
- #3 2 pc. side frame 1 1/2 " x 1 1/2 " x 24 "
- #4 2 pc. plate for scale 1/8 " x 1 1/2 " x 12" 4130 steel plate
- #5 2 pc. telescope leg # 9406 steel tube 1" x 48" to 60"
- #6 1 pc. alignment plate king pin 1/8 " x 6 " x 12 " 4130 steel plate
- #7 2pc. "U" channel for hinge 3/4" x 5/8" x 3/4" x 1" long 75 ST aluminum



Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049 Part # 860

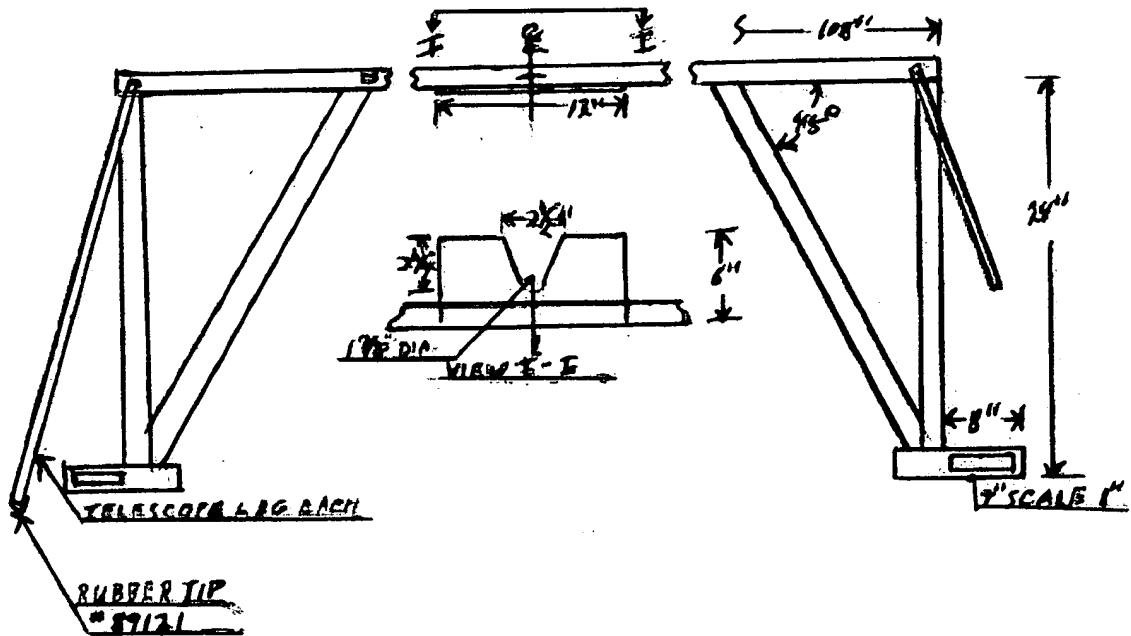
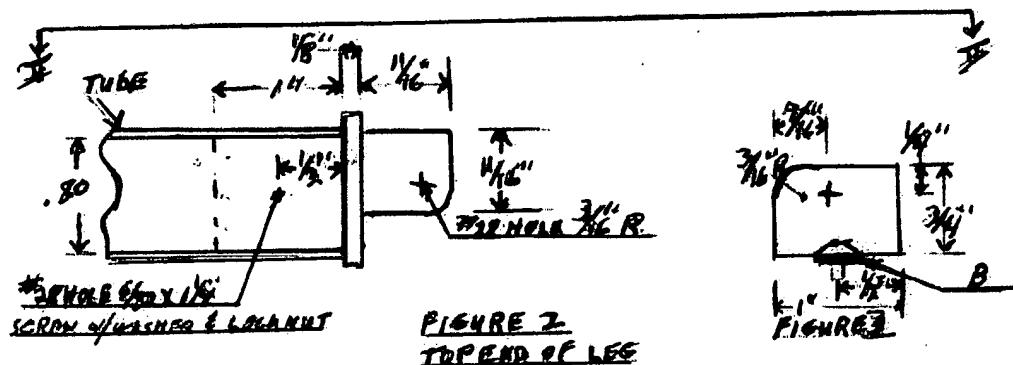
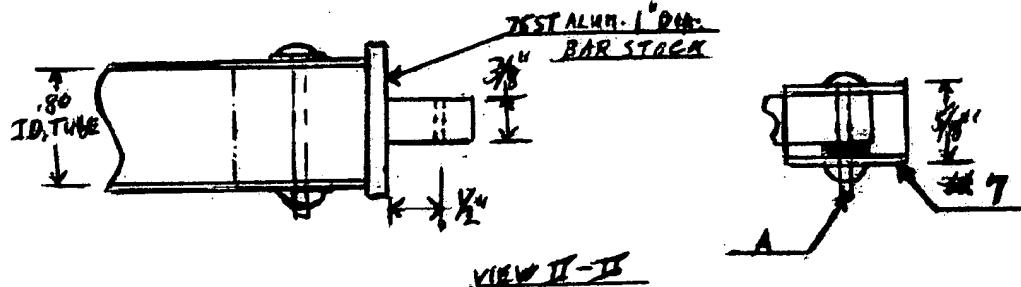


Figure # 1 Part # 860

Revised Sheet # 7 of 19

Henry Rohrig Truck Alignment System Tooling Jig to calibrate alignment unit part # 865

Shown on drawing sheet # 8 looking figure A-A weld -1 & -2

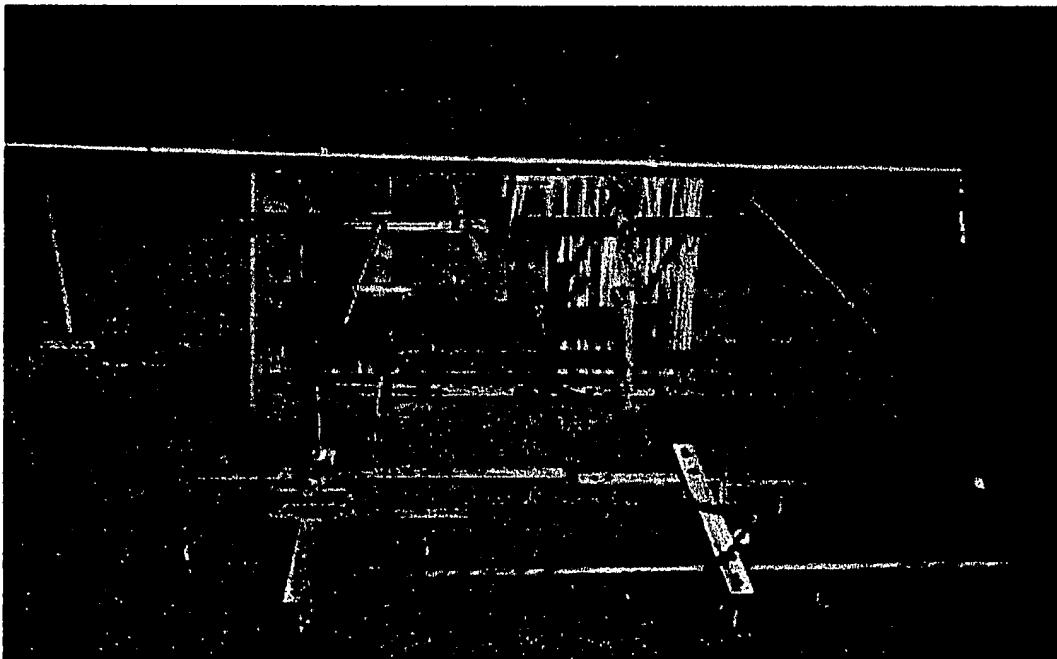
together at 90 degree. There is a picture below showing them attached.

To calibrate units. Installing units into jig with threaded rods. Turn laser lights on both sides, light will be projected onto the scale. If the light does not align to same number on each side, adjust the scale to align to the proper number.

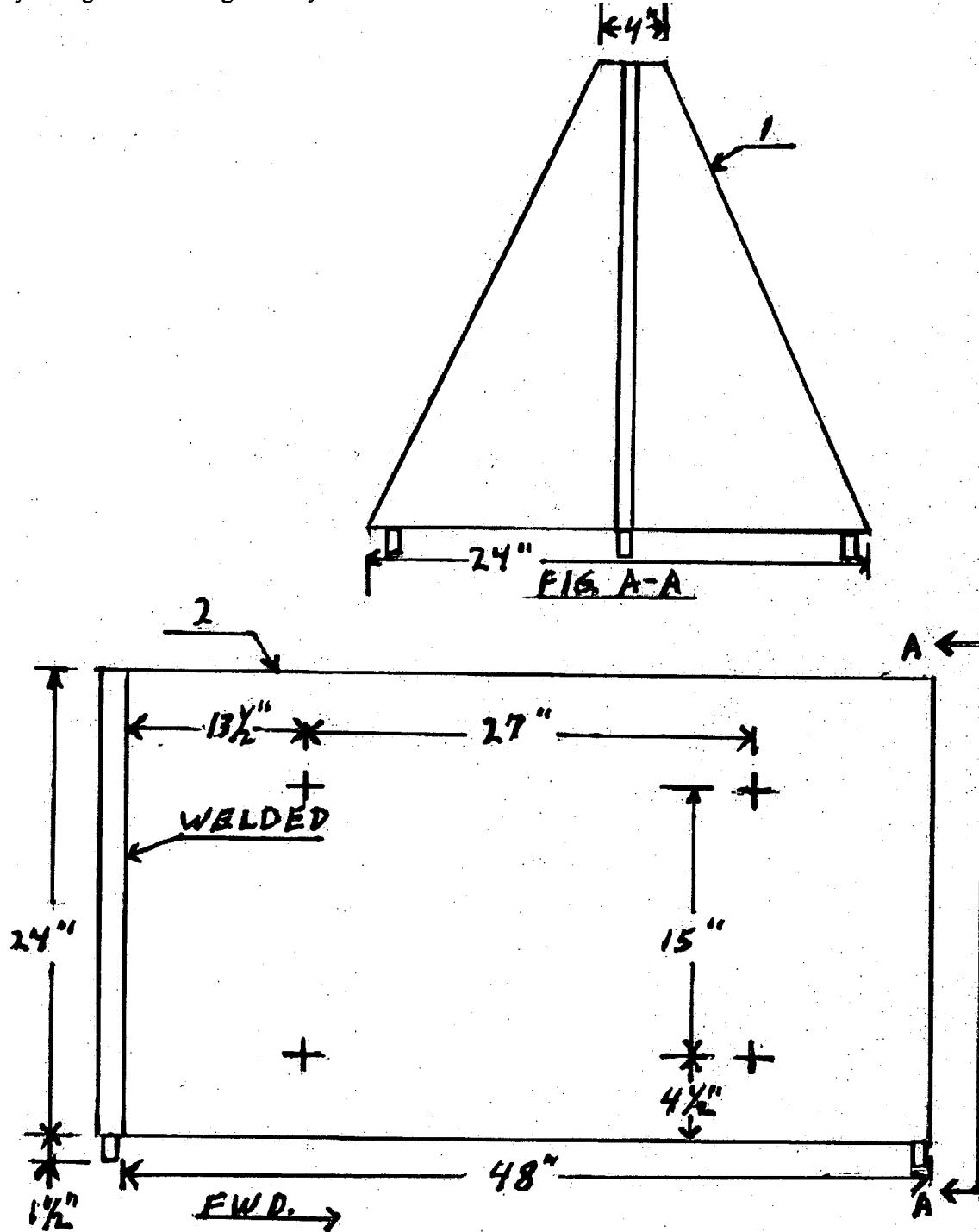
Material list;

#1 1 pc. 3 / 8" x 24" x 24" 6061 aluminum - cutting piece on both sides going from bottom corner to top with 4" flat in center cut at this point.

2 1 pc. 3 / 8" x 24" x 48" 6061 aluminum - this is for one jig, drill 4 holes 3/4" diameter as depicted on the drawing.



Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049 Part # 865



Drawing for tooling on drive and steering axle - Part # 865

Sheet # 9 of 19

Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049 Part # 862

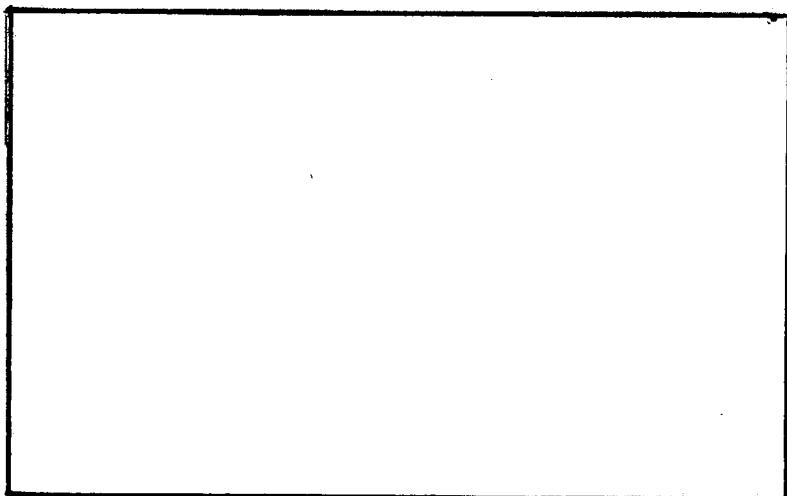
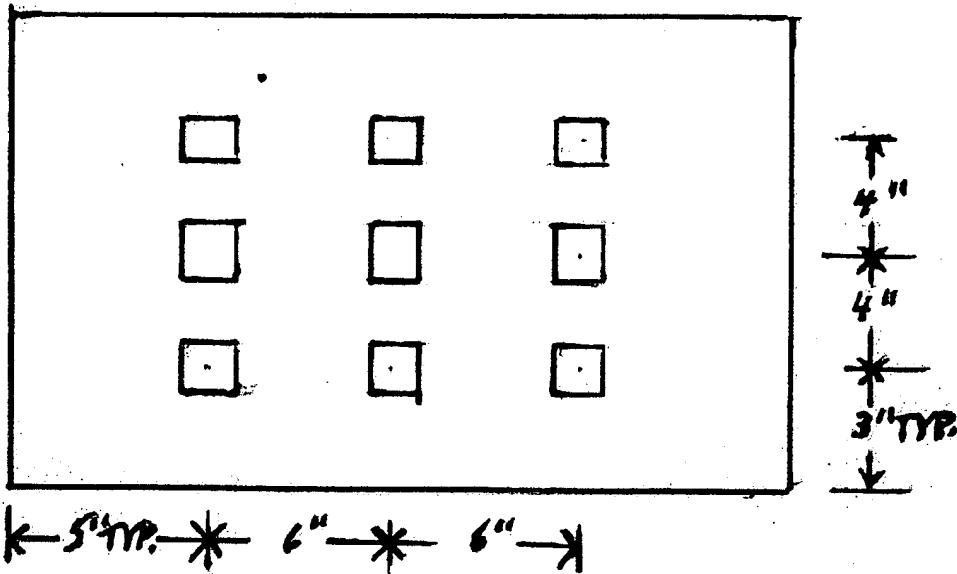
Tooling Jig Drive Axle for 22.5" / 24.5" wheel size also used on Busses and Trailers

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Revised Sheet # 10 of 19

Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049

Roller plate # 2 units part # 864



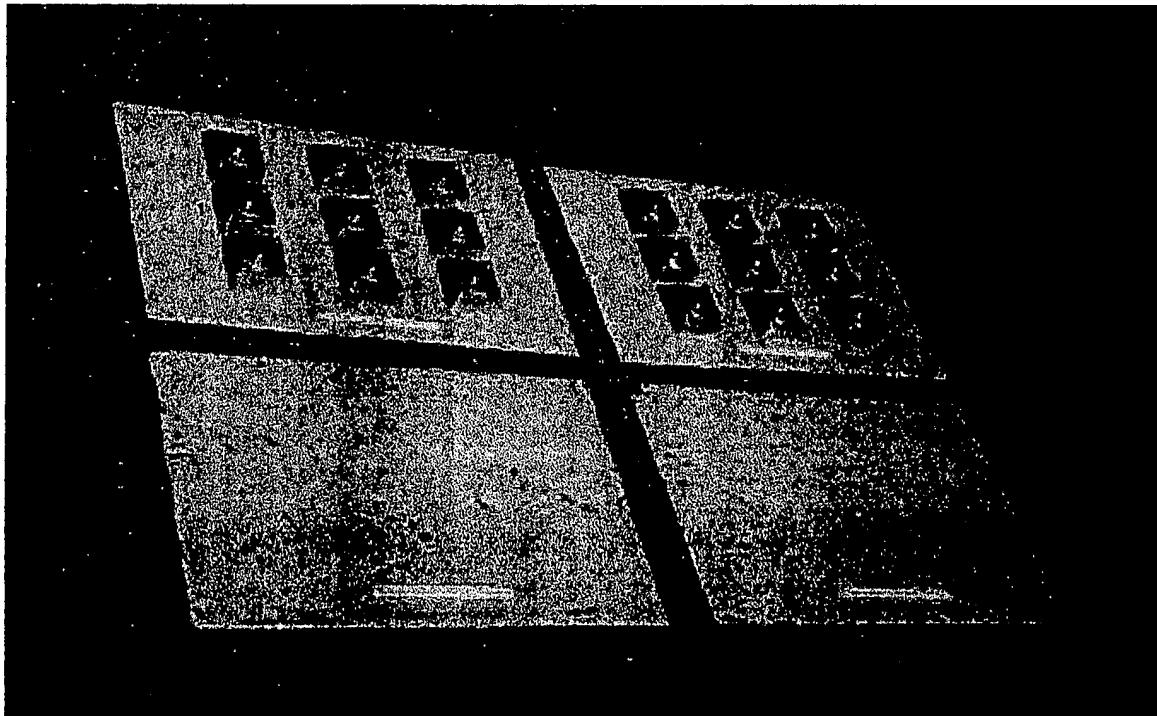
See next sheet for specifications

Added Sheet # 10-A of 19

Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049

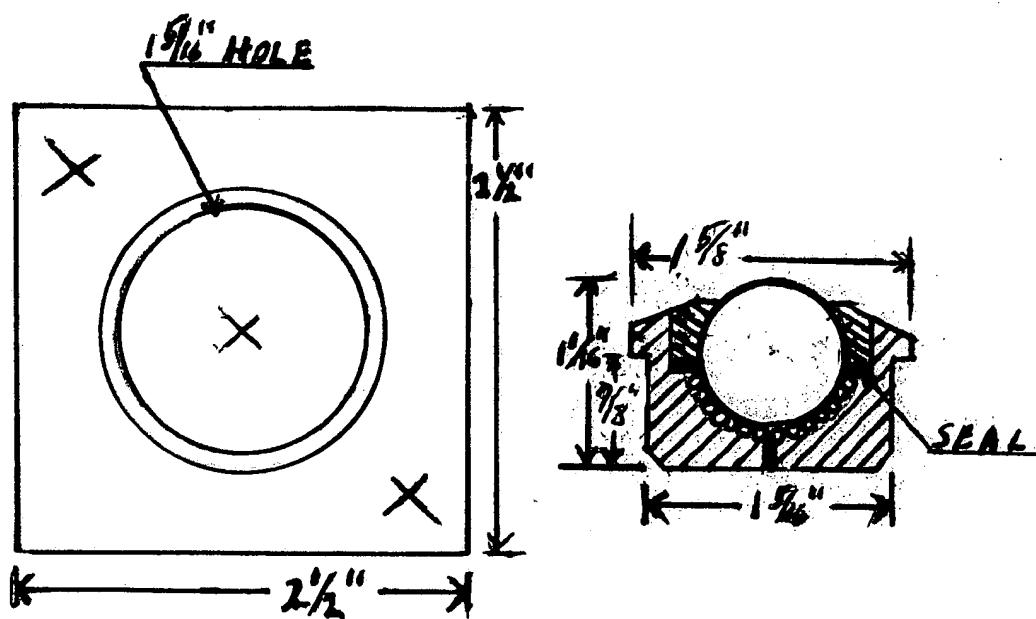
Roller plates two units top and bottom plates part # 864

The Ball Mount Transfers make this unit. The main ball is 13/16" Diameter. Steel, setting on smaller steel balls, and they are oiled from under side, with a seal which is pressed down with a stamped carbon steel top cover. The retainer made from 75 ST aluminum stock 7/8" x 2 1/2" x 2 1/2" with 1 5/16" hole and the ball unit pressed in place. It is held down with two 10-32 x 1 1/2" flat head screws, with locknuts thru the bottom plate 3/16" x 14" x 22" steel. The upper plate is 3/8" x 14" x 22" steel and it rest on the balls so it will move freely with the truck weigh. These plates are shown on sheet # 10-B and in a picture below.



Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049

Roller plates two units top and bottom plates part # 864



Ball transfer unit

Revised Sheet # 11 of 19

INDEX Drawing

Henry Rohrig Truck Alignment System 818-761-3628 818-489-2049

Sheet	#	Brief description of invention	Revision
		Drive unit tooling description part # 856 passenger side / part # 857 drivers side	Revision
	#1-A	Continuation	New
	#2	Drive unit drawing part # 856 / part # 857	Revision
	#2-A	Drawing of parts	New
	#3	Steering unit tooling description	Revision
	#3-A	Continuation	New
	#4	Steering unit drawing part # 858 / part # 859	Revision
	#4-A	Drawing of parts	New
	#5	Trailer unit tooling description	Revision
	#5-A	Continuation	New
	#6	Trailer unit drawing part # 860	Revision
	#7	Jigs to calibrate tooling description	Revision
	#8	Steering axle tooling jigs part # 865	Revision
	#8-A	Drawing of replacement JIG	Revision
	#9	DELETED	Deleted
	#10	Roller plate # 2 drawing part # 864	Revision
	#10-A	Description of unit	New
	#10-B	Ball Transfer Unit	New
	#11	Index for drawing section	Revision

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